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2004

Review of "The Contextual Determininants of Malaria"

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Baird, J. Kevin, "Review of "The Contextual Determininants of Malaria"" (2004). *Public Health Resources*. 356.
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The Contextual Determinants of Malaria. E. A. Casman and H. Dowlatabadi (editors), 2002. Washington, DC, Resources for the Future Press, 382 pages.

The editors of this book are not malariologists. They are academicians with technical backgrounds in modeling environmental processes. The book they assemble aims to provide "important advances to our understanding of the climate change-malaria linkage." They assembled a diverse array of authors, most of who are well known in the field of malaria. The authors discuss some controversial and hotly debated issues in the field of malaria control and disagreements abound, but one senses they have disappointed their editors in at least agreeing upon two things: 1) the evidence for a climate change-malaria linkage is, at best, weak, and 2) even if such a linkage existed, the appropriate means of dealing with it is conventional rather than going after the atmosphere. Four parts compose the book: 1) Malaria and Climate Change: Issues and Analytical Tools; 2) Regional Assessments; 3) A Changing Context; and 4) Synthesis.

Part 1 disappointed this non-modeling reader. It points to the necessity of modeling to grasp a global phenomenon like climate change and malaria transmission (Chapter 1), and then explains why this cannot be done (Chapter 2). The complexity of malaria transmission demands area- or region-specific models. In his one-page contribution, Duane Gubler writes that models "should not be used to predict future diseases scenarios, because the input data are not validated and inaccurate input data will lead to erroneous conclusions." So what are these models to be used for? Understanding determinants of malaria transmission and using that insight to compose effective interventions.

Part 2 provides fact-filled regional assessments of the past and current malaria situation by authors knowledgeable of those regions. These are valuable distillations of decades of surveillance data. The authors further provide their views of

the regionally important determinants of malaria transmission, and here valuable insights based on much experience abound. Unlike any other region, the editors allowed two chapters on malaria in the Americas; one by Donald R. Roberts and colleagues, and the other by Renato d'A. Gusmao (who focuses on Brazil specifically). These two chapters represent the deep philosophical divide among malaria workers (dating back to Ronald Ross) advocating malaria control by attacking the vector versus managing the disease. Whereas Roberts and colleagues argue forcefully that failure to sustain DDT spraying constitutes the primary determinant of malaria transmission in South America, Gusmao presents surveillance data from Brazil reflecting improvements he attributes to the shift in strategy away from vector control and towards rapid diagnosis and effective treatment. The high quality color plates (Roberts et al) depicting determinants of malaria transmission in South America will fascinate malariologists working on that continent.

Part 3 describes specific phenomena that change and impact risk of malaria. These include climate, the tools of prevention and treatment, human population growth and migrations, and political and economic trends. The chapter on climate disappoints with a geophysical focus rather than providing a summary of epidemiologic studies that affirm a linkage between weather anomalies and malaria transmission, e.g., the well-documented outbreaks of malaria associated, seemingly paradoxically, with El Niño-induced drought in the highlands of New Guinea. Readers of the *Journal* will enjoy the chapter by Robert S. Desowitz describing the past and future development of drugs and vaccines against malaria, in which he complains of "the current dissociation between research and reality." Socrates Litsios tackles political issues in describing strategies for malaria control before, during and after the World Health Organization Global Malaria Eradication Campaign of the 1950s and 1960s. This provides the foundation for his ambitious and sweeping vision of appropriate malaria control for the future – one based on addressing the social and economic inequalities that foster malaria transmission. Litsios rails against contemporary aid agencies as "counterrevolutionaries" applying resources to impose a vertical, foreign and unsustainable agenda.

Although Part 4 carries the climate and modeling focus, it nonetheless successfully communicates the essential message for malariologists to be gleaned from this broad array of expertise, technology and opinions: the primary determinant of malaria transmission is the broad strategy we choose to bring to bear against it. We are not at the mercy of malaria – on the contrary, this disease waxes and wanes according to human interventions against it. If malaria is gaining ground, as it has been for more than 30 years, we must carefully examine our strategies.

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